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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,992	10/02/2003	Barnadad Bahar	0769-4582US6	7795
27123	7590	05/16/2007		
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER VETERE, ROBERT A	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 05/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/675,992

Applicant(s)

BAHAR ET AL.

Examiner

Robert Vetere

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 1-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/03;4/04;7/04;7/05;1/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

Art Unit: 1709

DETAILED ACTION

Examiner Notes

1. A preliminary amendment correcting the specification was received on October 2, 2003.

Election/Restrictions

2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-24, drawn to a method of making a solid electrolyte wherein the porous membrane is fully impregnated, classified in class 264, subclass 349.
 - II. Claims 25-34, drawn to a method of preparing a substantially air occlusive integral composite membrane with a microstructure of micro pores wherein said micro pores are sufficiently filled with ion exchange resin, classified in class 427, subclass 115.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are directed to related processes. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In this application, the inventions as claimed have a materially different design because I is directed to a first method of making a solid electrolyte, while II is directed to a different method where the membrane is coated on each major surface where the coated product has a further limitation of having an ionic conductance rate of at least 5.1 $\mu\text{mhos/min}$.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

3. During a telephone conversation with Matthew Blackburn on March 28, 2007 a provisional election was made with traverse to prosecute the invention of Group II, claims 25-34. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 25-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicant claims, in claim 25, that the ion exchange resin is applied to *each major surface* of the polymeric support. The language "each major surface" is absent from the specification and it is not clear what applicant is attempting to claim by using this particular language. In the context of claim 1, examiner interprets this language to be met by any coating process wherein all the micropores appearing on the surface of a membrane are sufficiently filled. Claims 26-34 are also rejected under this logic because they depend from and, therefore, contain all the limitations of claim 25.

Claim Rejections – 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

7. Claims 25-30 and 32-34 are rejected under 35 U.S.C. 102(a) as being anticipated by JP H6-29032 (computer translation, hereinafter '032) (US Patent 3,953,566 is referred to as evidence regarding claim 32).

Claim 25: '032 teaches a method for producing a substantially air occlusive integral composite membrane comprising:

- (a) providing a polymeric support having a microstructure of micropores having a thickness of 1 mil (¶¶ 0007,0015); and
- (b) applying ion exchange resin solution to each major surface of said polymeric support (¶ 0015); whereby said micropores are sufficiently filled with ion exchange resin to form an air occlusive integral composite membrane (¶ 0015).

Art Unit: 1709

With respect to the claim language that the composite membrane of claim 1 has an ionic conductance rate of at least 5.1 $\mu\text{mhos/min}$: while '032 is silent as to the ionic conductance rate of its composite membrane, examiner notes that the membrane disclosed in '032 necessarily meets this limitation for the following reasons:

Applicants' claimed invention consists of an expanded polytetrafluoroethylene ("PTFE") member (thickness of no more than 1 mil, a porosity of more than 35% (preferably 70-95%), an average pore diameter of less than 10 microns) which is sufficiently filled with perfluorinated sulfonic acid, and dried at 140 degrees C. These steps are then repeated until the desired degree of impregnation is achieved, after which, the membrane is then treated with distilled water (see applicants' specification).

In '032, the method disclosed consists of supplying an expanded PTFE member (\P 0015) with a thickness from 10 to 200 microns (0.39-7.87 mils, \P 0007), a porosity of 90% (\P 0015), a mean pore size of 1 micron (\P 0015). This expanded PTFE member is sufficiently filled with perfluorinated sulfonic acid (\P 0015) and dried at 140 degrees C (\P 0015). These steps are then repeated until the desired degree of impregnation is achieved (\P 0015), after which the membrane is then treated with purified water (\P 0015). Given the identical properties and methods of fabrication between applicants' claimed invention and the invention disclosed in '032, it necessarily flows that the invention claimed in '032 will have an ionic conductance rate of at least 5.1 $\mu\text{mhos/min}$.

Claims 26-28: '032 teaches all the limitations of claim 25, as discussed above. It also teaches that step (b) was repeated five times each followed by a drying step (\P 0015).

Claims 29, 30 and 32: '032 teaches all the limitations of claim 25, as discussed above. It also teaches that the polymeric support is expanded PTFE (\P 0007, 0015, hereinafter "ePTFE"). Examiner notes that while '032 refers to ePTFE as stretched PTFE which is heated in its stretched state, this is the same method that is used to create ePTFE disclosed in US Patent 3,953,566 which is incorporated into applicants' specification as the method used to create the ePTFE claimed by applicants. Also, with respect to claims 29 and 30, ePTFE is a polyolefin and also is a fluorinated polymer.

Claim 33: '032 teaches all the limitations of claim 25, as discussed above. It also teaches that the ion exchange resin is a perfluorinated sulfonic acid (\P 0015).

Art Unit: 1709

Claim 34: '032 teaches all the limitations of claim 25, as discussed above. It also teaches all the limitations of claims 27, 32 and 33, as discussed above.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over '032 in light of Saeki et al. (Machine Translation, JP-64-22932, hereinafter '932).

Claim 31: '032 teaches all the limitations of claim 25, as discussed above. What it does not teach is that the polymeric support is a chlorinated polymer. '906 teaches a method of impregnating microporous polymeric supports with polymeric ion-exchange materials wherein the polymeric support is polyvinylchloride (Col. 2, lines 58-63). '906 explains that a chlorinated support is used in favor of other polymers (particularly PTFE) because it has chemically active sites for adding ion-exchange groups and therefore is better suited to hold the ion-exchange material during use of the membrane (Col. 1, lines 11-32). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a chlorinated polymeric support, as taught by '906, in the method taught by '032 in order to have produced an ion-exchange membrane with improved infiltration of the ion-exchange material.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Vetere whose telephone number is (571) 270-1864. The examiner can normally be reached on M-Th, 7:30-5:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1709

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert Vetere



MICHAEL B. CLEVELAND
SUPERVISORY PATENT EXAMINER